CLAIMS

1. A high strength α+β titanium alloy pipe having an outside diameter of at least 150 mm and a wall thickness of at least 6 mm, said α+β titanium alloy pipe characterized by having a welded seam running in the longitudinal direction of pipe at one location and by having a ratio of a minimum wall thickness to a maximum wall thickness of the portions excluding the weld zone of 0.95 to 0.99.

2. A high strength α+β titanium alloy pipe as set forth in claim 1, wherein the high strength α+β titanium alloy contains by wt%,

Al: 2.5 to 3.5% and V: 2.0 to 3.0%, and the balance of Ti and unavoidable impurities.

3. A high strength α+β titanium alloy pipe as set forth in claim 2, wherein the high strength α+β titanium alloy further contains by wt%,

at least one of Pd and Ru: 0.01 to 0.5% in total.

4. A high strength α+β titanium alloy pipe as set forth in claim 1, wherein the high strength α+β titanium alloy contains by wt%,

Al: 5.5 to 6.75% and V: 3.5 to 4.5%, and the balance of Ti and unavoidable impurities.

5. A high strength α+β titanium alloy pipe as set forth in claim 4, wherein the high strength α+β titanium alloy further contains by wt%,

at least one of Pd and Ru: 0.01 to 0.5% in total.

~~6. A high strength α+β titanium alloy pipe as set forth in any one of claims 1 to 5, wherein the pipe as a whole is comprised of a β-annealed structure.~~

7. A method of production of a pipe having an outside diameter of at least 150 mm and a wall thickness of at least 6 mm, comprised of a high strength $\alpha+\beta$ titanium alloy, having a welded seam running in the longitudinal direction of pipe at one location, and having a ratio of a minimum wall thickness to a maximum wall thickness of the portions excluding the weld zone of 0.95 to 0.99, said method of production of a high strength $\alpha+\beta$ titanium alloy pipe characterized by cold forming a high strength $\alpha+\beta$ titanium alloy plate of a thickness of at least 6 mm into a tubular shape by a U-O method or press-bending method and welding together the abutted plate edges.

8. A method of production of a high strength $\alpha+\beta$ titanium alloy pipe as set forth in claim 7, characterized by welding together the abutted plate edges by keyhole plasma welding.

9. A method of production of a high strength $\alpha+\beta$ titanium alloy pipe as set forth in claim 7, characterized by welding together the abutted plate edges by key hole plasma welding and overlaying by plasma welding or TIG welding using a welding filler.

10. A method of production of a high strength $\alpha+\beta$ titanium alloy pipe as set forth in any one of claims 7 to 9, characterized by arranging the tubular shaped member so that the abutted plate edges come to the top and welding from the top of the outside of the tubular shaped member.

11. A method of production of a high strength $\alpha+\beta$ titanium alloy pipe as set forth in any one of claims 7 to 9, characterized by arranging the tubular shaped member so that the abutted plate edges come to the bottom and welding from the top of the inside of the tubular shaped member.

12. A method of production of a high strength $\alpha+\beta$

titanium alloy pipe as set forth in any one of claims 7 to 11, characterized in that part or all of a pilot gas and shield gas used for the welding is helium gas.

13. A method of production of a high strength α+β titanium alloy pipe as set forth in any one of claims 7 to 12, wherein the high strength α+β titanium alloy plate of a thickness of at least 6 mm is a high strength α+β titanium alloy plate which is worked at a reduction of at least 50% in a temperature region of not more than a β-transus temperature and is annealed in a temperature region of not more than the β-transus temperature.

14. A method of production of a high strength α+β titanium alloy pipe as set forth in claims 7 to 13, characterized by performing heat treatment comprising heating the welded pipe to at least the β-transus temperature and cooling at a cooling rate of at least air cooling and further heating to 650°C to 850°C, holding it there for at least 30 minutes, and cooling at a cooling rate of not more than air cooling.

15. A method of production of a high strength α+β titanium alloy pipe as set forth in claims 7 to 13, characterized by performing a series of heat treatments comprising heating the welded pipe to at least the β-transus temperature and cooling at a cooling rate of at least air cooling, further heating to 650°C to 850°C, holding it there for at least 30 minutes, and cooling at a cooling rate of not more than air cooling, and heating to 450 to 650°C, holding it there for at least 2 hours, and cooling at a cooling rate of not more than air cooling.

16. A method of production of a high strength α+β titanium alloy pipe as set forth in claim 7, characterized in that the high strength α+β titanium alloy contains by wt%,

Al: 2.5 to 3.5% and V: 2.0 to 3.0%, and the balance of Ti and unavoidable impurities.

17. A method of production of a high strength α+β titanium alloy pipe as set forth in claim 16, characterized in that the high strength α+β titanium alloy further contains by wt%,

at least one of Pd and Ru: 0.01 to 0.5% in total.

18. A method of production of a high strength α+β titanium alloy pipe as set forth in claim 7, characterized in that the high strength α+β titanium alloy contains by wt%,

Al: 5.5 to 6.75% and V: 3.5 to 4.5%, and the balance of Ti and unavoidable impurities.

19. A method of production of a high strength α+β titanium alloy pipe as set forth in claim 18, characterized in that the high strength α+β titanium alloy further contains by wt%,

at least one of Pd and Ru: 0.01 to 0.5% in total.

20. A method of production of a high strength α+β titanium alloy pipe as set forth in claim 7, characterized in that the pipe as a whole is comprised of a β-annealed structure.

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